BOLOTOVSKAYA, T.P.; BOLOTOVSKIY, I.A., kand. tekhn. nauk, dots.; BOCHAROV, G.S.; GULYAYEV, V.I.; KURLOV, B.A.; MERKUR'YEV, I.A.; SMIRNOV, V.E.

[Handbook on the geometrical calculation of involute toothed and worm gears] Spravochnik po geometricheskomu raschetu evol'ventnykh zubchatykh i cherviachnykh peredach. [By] T.P. Bolotovskaia i dr. Moskva, Mashgiz, 1963. 472 p. (MIRA 17:4)

KOSTYUK, D.I.; GOLDAYEVA, O.I.; YAKOVLEV, Yu.V. Prinimali uchastiye: BOLOTOVSKI, T.P.; BOLOTOVSKIY, I.A.; SMIRNOV, V.E.; BAZILYANSKAYA, I.L., red.

[Manual for the preparation of a course project in the theory of mechanisms and machines] Rukovodstvo k kursovomu proektirovaniiu po teorii mekhanizmov i mashin. Izd.2., ispr. i dop. Khar'kov, Izd-vo Khar'kovskogo univ., 1961. 265 p. (MIRA 18:6)

BOLOTOVSKIY, B.

~~BOLOTOBSKIY,~~ B.

USSR/Physics - Electrodynamics, Energy Loss 1 Jul 52

"Problem Concerning the Energy Losses of by a Uniformly Moving Charge," B. Bolotovskiy, A. Kolomenskiy

"Dok Ak Nauk SSSR" Vol LXXXV, No 1, pp 59-61

Acknowledges the interest and discussion of V. I. Veksler, Corr Mem, Acad Sci USSR. States that the influence of the atoms of a medium decreases the energy losses of a charge moving in it, which occurs because of the screening of the charge's field arising (i.e., screening) in consequence of polarization. Shows that one can obtain a unique

224T97

(single-valued) expression for the complete energy losses of a particle moving in a transparent medium without resorting to the introduction of damping. Submitted by Acad D. V. Skobel'tsyn 30 Apr 52.

224T97

BOLOTOVSKIY, B.M.

In memory of S.I.Vavilov. Vest.AN SSSR 26 no.4:138-139 Ap.'56.
(Vavilov, Sergei Ivanovich, 1891-1951) (MIRA 9:7)

BOLOTOVSKIY, B.M.

PA - 2971

AUTHOR: BOLOTOVSKY, B.M.

TITLE: Skin Effect in Thin Films and Wires. (skin effekt v tonkikh plenkakh i provolochkakh, Russian)

PERIODICAL: Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol 32, Nr 3, pp 559-565 (U.S.S.R.)
Received: 6 / 1957 Reviewed: 7 / 1957

ABSTRACT: The impedance of thin films and wires (of a thickness that is considerably less than the free length of path of the electron in unlimited metal) is computed according to the kinetic theory. For the derivation of equations the method developed by R.G. CHALMERS (Proc.Roy.Soc.A, 202, 378, 1950) was used. The resulting integral equation is formally solved by development according to a parameter, but only the d.c. impedance is explicitly computed. The order of magnitude of the following terms is estimated by means of an approximation method. A characteristic factor the ratio between a dimension of the conductor (the thickness $\hbar$ of the film and/or of the radius R of the wire) and the penetrating depth of the field in a massive conductor of the same static conductivity is used. If this ratio is low, an analogy to the skin effect (development of the dissipative resistance according to even and of the reactive resistance according to odd frequency powers) is found, and this is the case in a frequency domain

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Skin Effect in Thin Films and Wires.

that is much larger in the case of the classical effect; if conductors are sufficiently thin, the domain of the anomalous effect may lack altogether. If the anomalous effect occurs (always in the case of conductors that are not too thin), impedances depend on thickness (only in the case of specular reflection of electrons on the surface like $h^{1/3}$ and $R^{-2/3}$). (With 2 Illustrations and 10 Citations from Published Works).

ASSOCIATION: Physical Institute "P.N.LEBEDEV" of the Academy of Science of the U.S.S.R.

PRESENTED BY:

SUBMITTED: 9.2.1956

AVAILABLE: Library of Congress

Card 2/2

BOLOTOVSKIY, B. M.

56-6-19/56
[redacted]

AUTHOR: BOGDANKEVICH, L.S., BOLOTOVSKIY, B.M.

TITLE: Movement of a Charge Parallel to the Axis of a Cylindrical Channel in a Dielectric. (Prokhozhdeniye zaryada parallel'no osi tsilindricheskogo kanala v dielektrike, Russian)

PERIODICAL: Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol 32, Nr 6, pp 1421-1428 (U.S.S.R.)

ABSTRACT: Theoretically the field equations for a charge moving parallel to the axis of a cylindrical channel in a dielectricum are derived. The energy loss of the charge is also calculated for various states of the dielectricum. The derived equations can be used for the following problems: Focussing of charged particles in a cylindrical channel, explanation of the theory of the ČERENKOV counter, forming of electromagnetic radiation. (With 5 Slavic References).

ASSOCIATION: Physical Institute "P.N.LEBEDEV" of the Academy of Science of the U.S.S.R.

PRESENTED BY:

SUBMITTED: 14.7.1956/21.7.1956

AVAILABLE: Library of Congress

Card 1/1

BOLOTOVSKIY, B.M.; FATEYEV, A.P.

Use of the Einstein-Focker equation in determining particle losses on the basis of residual gases in accelerators. Zhur. eksp. i teor. fiz. 33 no.1:304-306 Jl '57. (MLRA 10:9)

1. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR. (Particle accelerators).

BOLOTOVSKIY, B.M.

56-7-62/66

AUTHOR BOLOTOVSKIY, B.M., FATEYEV, A.P.

TITLE On the Applicability of the Einstein-Fokker Equations for the Determination of Particle Losses in the Residual gas in Accelerators. (O primenimosti uravneniy Eynshteyna -Fokkera pri opredelenii poter' chastits na ostatochnom gaze v uskoritelyakh - Russian)

PERIODICAL Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol 33, Nr 7, pp 304-306 (U.S.S.R.)

ABSTRACT First reference is made to several previous works dealing with this subject. By $P(y,t)$ the authors denote the probability of the fact that at the moment t the particle has the amplitude y of the betatron or synchrotron oscillations. The Einstein-Fokker equation in this case has the following shape:

$$\partial P(y,t)/\partial t = -\partial(\overline{\Delta y}P)/\partial y + (1/2)\partial^2(\overline{\Delta y^2}P)/\partial y^2 \text{ with } \overline{\Delta y^n} = \lim_{\Delta t \to 0} (1/\Delta t) \int_{-\infty}^{\infty} Q(y, \Delta y, \Delta t)(\Delta y)^n \, d(\Delta y).$$

Here $Q(y,\Delta y,\Delta t)$ denotes the probability that the amplitude y of the vibrations of the particles will be modified by Δy during the time $\Delta t \to 0$. The above equation is correct if $\overline{(\Delta y)^3} \ll \overline{(\Delta y)^2}, \ll \overline{\Delta y}$ is true. The authors here investigate the problem as to whether this condition applies also in the case of the modification of frequency of betatron vibrations as a result of elastic scattering. The frequency modification of synchrotron vibration as a result of nonelastic collisions of the particles to be accelerated with the residual gas is here used as an example. If, on the occasion of collisions, a particle loses more than a certain (here

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. BOLOTOVSKIY, B.M.

AUTHOR BOLOTOVSKIY, B.M., FATEYEV, A.P. 56-7-62/66

TITLE On the Applicability of the Einstein-Fokker Equations for the Determination of Particle Losses in the Residual gas in Accelerators. (O primenimosti uravneniy Eynshteyna -Fokkera pri opredelenii poter' chastits na ostatochnom gaze v uskoritelyakh - Russian)

PERIODICAL Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol 33, Nr 7, pp 304-306 (U.S.S.R.)

ABSTRACT First reference is made to several previous works dealing with this subject. By $P(y,t)$ the authors denote the probability of the fact that at the moment t the particle has the amplitude y of the betatron or synchrotron oscillations. The Einstein-Fokker equation in this case has the following shape:

$\partial P(y,t)/\partial t = -\partial(\overline{\Delta y}P)/\partial y + (1/2)\partial^2(\overline{\Delta y^2}P)/\partial y^2$ with $\overline{\Delta y^n} = \lim_{\Delta t \to 0} (1/\Delta t) \int_{-\infty}^{\infty} Q(y, \Delta y, \Delta t)(\Delta y)^n \, d(\Delta y)$. Here $Q(y,\Delta y,\Delta t)$ denotes the probability that the amplitude y of the vibrations of the particles will be modified by Δy during the time $\Delta t \to 0$. The above equation is correct if $\overline{(\Delta y)^3} \ll \overline{(\Delta y)^2}, \ll \overline{\Delta y}$ is true. The authors here investigate the problem as to whether this condition applies also in the case of the modification of frequency of betatron vibrations as a result of elastic scattering. The frequency modification of synchrotron vibration as a result of nonelastic collisions of the particles to be accelerated with the residual gas is here used as an example. If, on the

Card 1/2 occasion of collisions, a particle loses more than a certain (here

On the Applicability of the Einstein-Fokker Equations for the Determination of Particles Losses in the Residual Gas in Accelerator. 56-7-62/66

mentioned) amount of energy, it is immediately eliminated from the acceleration process. The probability of such losses, which occur only once, is considerable. On the basis of what has been discussed here losses caused by multiple nonelastic interaction were computed for a 25o MeV synchrotron and for a 1o BeV synchrophasotron. For the 1o BeV synchrophasotron particle losses amounting to several % are thus obtained.
(No illustrations)

ASSOCIATION Physical Institute "P.N. Lebedev" of the Academy of Sciences of the U.S.S.R. (Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR).

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Card 2/2

BOLOTOVSKIY, B.M.

AUTHOR: BOLOTOVSKIY, B.M. 53-3-1/10

TITLE: Theory of the Vavilov-Cherenkov Effect. (Teoriya effekta vavilova-Cherenkova, Russian)

PERIODICAL: Uspekhi Fiz. Nauk, 1957, Vol 62, Nr 3, pp 201 - 246 (U.S.S.R.)

ABSTRACT: The theory of the Vavilov-Cherenkov effect is described in detail. The Cherenkov effect, called Vavilov-Cherenkov effect by the Russians, is the luminescence of purest liquids under γ-radiation. The luminous sources are the electrons freed by the γ-quanta, whose speed is greater than the phase speed of light in the material. Not all sides of the Cherenkov effect are theoretically investigated, as for example the Cherenkov effect in the atmosphere, its effects in ferro-magnetic materials, the influence of multiple dispersion on the angular width of Cherenkov radiation. The present summarizing report is a counterpart to the summary of experimental data of the Cherenkov effect by Jelley. Altogether 216 references were given and worked on.

The article deals with:

I. Vavilov-Cherenkov effect in isotropic materials

1\. 1. Maxwell's equations

1\. 2. Dielectric constant

1\. 3. Qualitative description

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Theory of the Vavilov-Cherenkov Effect.

1. 4. Field of a moving punctiformly-charged particle.
1. 5. Loss of energy of a charged particle
1. 6. Vavilov-Cherenkov radiation in a dispersionless material
1. 7. Longitudinal field and transverse field.
1. 8. Portion of total loss of energy due to Cherenkov radiation
1. 9. Radiation field.
1.10. Duration of scintillations
1.11. Radiation of current-carrying conductor
1.12. Use of the Vavilov-Cherenkov effect.
1.13. Vavilov-Cherenkov interference radiation.

II. VavilovCherenkov effect in crystalls

2. 1. Material equations
2. 2. Potential equations
2. 3. Qualitative considerations
2. 4. Polarization of Vavilov-Cherenkov waves
2. 5. Field of a moving punctiformly-charged particle.
2. 6. Vavilov-Cherenkov effect in a uniaxly crystal
a) the charge moves parallel to the optical axis
b) the charge moves vertical to the optical axis
2. 7. Speed of phases and groups of the Vavilov-Cherenkov waves in the crystal

53-3-4/10

Theory of the Vavilov-Cherenkov Effect.

2. 8. Vavilov effect in isotropic optically active material
2. 9. Vavilov-Cherenkov effect in a hydrotropic crystal
2.10. Vavilov-Cherenkov effect in electron plasma in a magnetic field.
(10 illustrations and 93 Slavic references.)

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 3/3

SOV/4-59-1-14/42

AUTHOR: Bolotovskiy, B.M., Candidate of Physico-Mathematical Sciences, ~~Worker of the Institute~~

TITLE: Electrons Shine (Elektrony svetyat)

PERIODICAL: Znaniye - sila, 1959, Nr 1, pp 19 - 20 (USSR)

ABSTRACT: The author gives a detailed history of the discovery of the Cherenkov counter with the assistance of the Soviet scientists, P.A. Cherenkov effect is at present being widely applied for the discovery of fast, charged particles. Designs of the Cherenkov counter have been developed which determine not only the flight direction of the particle, but also its velocity, charge and its full energy. Tests are also being made both in the USSR and abroad, to utilize the Cherenkov effect for obtaining radiowaves of one centimeter length and shorter, and for applying the theory of the Cherenkov effect in the search for new methods of acceleration of charged particles. In this

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connection, the author mentions the name of the Academician Vladimir Iosifovich Veksler. There are 5 drawings and 1 diagram.

ASSOCIATION: Fizicheskiy institut im. Lebedeva, AN SSSR (The Physical Institute imeni Lebedev of the AS USSR)

BOLOTOVSKIY, B. M.

On List of Soviet Participants in the International Conference on Cosmic Rays, held in Moscow, 8-11 July 1959. Conference sponsored by the International Union of Pure and Applied Physics.

SO: List of Soviet Participants in the Cosmic Ray Conference, Undated, Unclassified. RN/ec

24(0)

AUTHOR: Bolotovskiy, B. M. SOV/53-67-1-8/12

TITLE: Soviet Scientists - Holders of the Nobel Prize for Physics 1958 (Sovetskiye uchenyye - laureaty Nobelevskoy premii po fizike 1958 goda)

PERIODICAL: Uspekhi fizicheskikh nauk, 1959, Vol 67, Nr 1, pp 163 - 169 (USSR)

ABSTRACT: The author of the present paper gives an account of the life and the work of the three Soviet physicists who were awarded the Nobel Prize in 1958; Pavel Alekseyevich Cherenkov, Igor Yevgen'yevich Tamm and Il'ya Mikhaylovich Frank. They were awarded the prize for discovering and interpreting a phenomenon which is known in the USSR as Vavilov-Cherenkov effect, and in western countries simply as Cherenkov effect. The phenomenon as such was discovered already in 1934 by Cherenkov, who at that time worked as Aspirant with the Academician S. I. Vavilov. He investigated the luminescence of uranyl salt solutions under the influence of the γ-radiation of radium, and he found that all pure liquids subjected to this radiation

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Soviet Scientists - Holders of the Nobel Prize for Physics 1958 SOV/53-67-1-8/12

showed a weak luminescence; the so-called blue luminescence of liquids under intense ultraviolet irradiation had already been discovered and investigated in 1929 by Vavilov and L. A. Tumerman. The author then describes Cherenkov's further experiments which he carried out partly in collaboration with Vavilov in the latter's laboratory. In 1937 Tamm and Frank interpreted this phenomenon on a classically electrodynamic basis. The basic features of the theory (slowing down of charged particles as the cause of Cherenkov radiation) are given. Also V. L. Ginzburg took part in some of the investigations. The three scientists to whom the Nobel Prize was awarded are collaborators of the fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR); Cherenkov and Frank were pupils of Vavilov. Cherenkov was born at Voronezh in 1904, where he also studied at the university. In 1930 he became Aspirant under Vavilov. In recent years he investigated photonuclear reactions. Frank was born in Leningrad in 1908, studied at the Moskovskiy gosudarstvennyy universitet (Moscow State University), and later worked at the Gosudarstvennyy

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Soviet Scientists - Holders of the Nobel Prize for Physics 1958 SOV/53-67-1-8/12

opticheskiy institut (State Optical Institute) in Leningrad. In 1935 he obtained the degree of Doctor of Physico-Mathematical Sciences, and since 1946 he has been a Corresponding Member of the Academy of Sciences, USSR. Tamm was born at Vladivostok in 1895; after leaving high school in Elizavetgrad he studied at Edinburgh University 1913-14, and thereafter at the physico-mathematical faculty of Moscow University. In 1933 he was appointed Corresponding Member and in 1953 Regular Member of the Academy of Sciences, USSR. For many decades Tamm has held the Chair for theoretical physics at Moscow State University, Frank has the Chair for radioactive radiation, and Cherenkov is Professor at the Moskovskiy mekhanicheskiy institut (Moscow Institute of Mechanics).There are 3 figures and 11 references, 5 of which are Soviet.

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Belotovskiy, B.D.

PHASE I BOOK EXPLOITATION SOV/4393

Cherenkov, Pavel Alekseyevich, Professor, Igor' Yevgen'yevich Tamm, Academician, and Il'ya Mikhaylovich Frank, Corresponding Member, Academy of Sciences USSR

Nobelevskiye lektsii (Nobel Prize Papers) Moscow, Fizmatgiz, 1960. 73 p. 7,000 copies printed.

Ed.: T. V. Mikhalkevich; Tech. Ed.: Ye. A. Yermakova.

PURPOSE: This pamphlet is intended for physicists and researchers engaged in the application of the Cherenkov radiation principle in experimental physics.

COVERAGE: The pamphlet contains lectures by Professor P. A. Cherenkov, Academician I. Ye. Tamm, and Corresponding Member of the USSR Academy of Sciences I. M. Frank given in Stockholm on December 11, 1958 when receiving the Nobel Prize in physics. The supplementary article relates the history of the discovery of the Cherenkov radiation and represents biographical data on the three Nobel Prize re-

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cipients. Photographs of the prize winners are included in the booklet. The complete text of the speeches and of the article were previously published in Uspekhi fizicheskikh nauk, v. 67, no. 1, and v. 68, no. 3. The articles are accompanied by bibliographies listing Soviet and other technical literature.

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AVAILABLE: Library of Congress

Card 3/3 JA/rn/ec 10-20-60

S/141/60/003/02/021/025
E032/E314

AUTHORS: Barsukov, K.A. and Bolotovskiy, B.M.

TITLE: Energy Losses of a Charged Particle due to Transient Electromagnetic Radiation from a Moving Boundary

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol 3, Nr 2, pp 336 - 338 (USSR)

ABSTRACT: The theory of transient radiation was developed by Ginzburg and Frank in Ref 1 and Garibyan and Pafomov (Refs 2). In their work, the transient radiation from a boundary at rest was considered. The present paper generalises the analysis to the case of a moving boundary. The total energy of the radiation can in this case be obtained with the aid of the Lorentz transformation. However, in order to carry this out it is necessary to know not only the energy but also the momentum of the radiation in a system of coordinates in which the boundary is at rest. Moreover, in the case of a moving boundary the total energy of the radiation is not equal to the total particle energy losses since the radiation is associated both with the kinetic energy of the particle and the kinetic energy of the boundary. In the present

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Energy Losses of a Charged Particle due to Transient Electromagnetic Radiation from a Moving Boundary

paper it is the kinetic energy of the boundary which is under discussion. The kinetic energy of the particle varies owing to the retarding field and the fact that the character of the field carried along by the particle changes during its transition from one medium into another. The latter effect need not be taken into account if the particle intersects a plate having a finite thickness. The calculations given in the present paper did not take into account changes in the field carried along by the charged particles ("mass renormalization"). However, it is indicated how this effect can be taken into account in certain simple cases. The problem is of interest in astrophysics where charged particles can collide with moving charged clouds and also in plasma physics. The most convenient method which can be employed in the energy loss calculation is to use the Lorentz transformation of the known solution for a boundary at rest. The energy loss associated with the transition across a boundary at rest is defined by Eq (1), which is the integral of the

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Energy Losses of a Charged Particle due to Transient Electromagnetic Radiation from a Moving Boundary

retarding field along the path of the particle. In Eq (1), E_z is the component of the electric vector in the direction of the particle velocity w . A formula for E_z is given in Ref 2. In a system of coordinates moving with a velocity u relative to the separation boundary, u being perpendicular to the boundary, the electric field is given by Eq (2), while the particle velocity is given by Eq (3). The field at the particle, i.e. for $z' = vt'$, can easily be obtained from Eq (2) and is given by Eq (4). Integration of this quantity with respect to z' gives the energy loss for a particle moving with a velocity v . These losses are associated with a transition across the boundary which is moving with a velocity u and are given by Eq (5), where I_0 is the same function as in Eq (1) except that its argument is the relative velocity of the charge and the boundary. Eq (5) holds provided the condition given by Eq (6) is satisfied. For small values of v the latter inequality is not satisfied and Eq (5)

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Energy Losses of a Charged Particle due to Transient Electromagnetic Radiation from a Moving Boundary

does not hold. In the latter case the change in the energy associated with the passage of the particle across the boundary can be estimated as follows. Eq (7) gives a measure of the change in the particle momentum and provided p is much less than mc^2 the energy change is $p^2/2m$. In the ultra-relativistic case, when the particle moves with a velocity close to the velocity of light and the boundary moves towards the particle also with a velocity close to the velocity of light ($v \simeq c$, $u \simeq -c$), the situation is described by Eqs (8) and (9), from which it follows that the change in the energy of the particle during its passage through the boundary is independent of the velocity of the boundary. If the relative velocity of the charge and the boundary is close to the velocity of light, the change in the energy of the field carried along by the particle is given by Eq (10). Acknowledgment is made to V.L. Ginzburg for discussions of the present results.

Card 4/5 This is an abridged translation.

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E032/E314

Energy Losses of a Charged Particle due to Transient Electromagnetic Radiation from a Moving Boundary

There are 2 Soviet references

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva AN SSSR (Physics Institute im. P.N. Lebedev, Ac.Sc. USSR)

SUBMITTED: December 22, 1959

Card 5/5

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206120019-0"

33230
S/141/61/004/006/017/017
E032/E114

9,9000 (1046, 1109, 1327)

AUTHORS: Bolotovskiy, B.M., and Stolyarov, S.N.

TITLE: Fresnel formulae for a moving separation boundary between two media

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v.4, no.6, 1961, 1171-1172

TEXT: Previous workers are said to have discussed the interaction of electromagnetic waves with moving objects without allowing for the refracted wave which carries off a fraction of the incidence energy. This problem is of interest in view of the suggested use of reflection of EM-waves from boundaries moving with relativistic velocities for the production of microwaves. Another possible application is the experimental "sounding" of moving objects such as particle beams, plasma condensations, and so on. The present authors are therefore concerned with the case where the separation boundary and the media on either side of it move with an equal velocity $\underline{u}$ which is normal to the boundary. They suppose that a monochromatic plane wave is incident on the separation boundary and show that the amplitudes of the reflected

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and refracted waves are as follows:
a) radiation polarized in the direction perpendicular to the plane of incidence:

$$E_1 = \frac{\omega_1 \mu_2 k_{oz} - \mu_1 k_{2z} + (\mu_2 - \mu_1)\, \beta I_2/c\,(1 - \beta^2)}{\omega_o(\mu_1 k_{2z} - \mu_2 k_{1z}) - (\mu_2 - \mu_1)\, \beta I_2/c(1 - \beta^2)} E_o$$

$$E_2 = \frac{\omega_2}{\omega_o} \frac{\mu_2(k_{oz} - k_{1z})}{(\mu_1 k_{2z} - \mu_2 k_{1z}) - (\mu_2 - \mu_1)\, \beta I_2/c\,(1 - \beta^2)} E_o \qquad (7)$$

b) radiation polarized in the plane of incidence

$$H_1 = \frac{\omega_1(\varepsilon_2 k_{oz} - \varepsilon_1 k_{2z}) + (\varepsilon_2 - \varepsilon_1)\, \beta I_2/c(1 - \beta^2)}{\omega\,(\varepsilon_1 k_{2z} - \varepsilon_2 k_{1z}) - (\varepsilon_2 - \varepsilon_1)\, \beta I_2/c(1 - \beta^2)} H_o$$

$$H_2 = \frac{\omega_2}{\omega_o} \frac{\varepsilon_2(k_{oz} - k_{1z})}{(\varepsilon_1 k_{2z} - \varepsilon_2 k_{1z}) - (\varepsilon_2 - \varepsilon_1)\, \beta I_2/c(1 - \beta^2)} H_o \qquad (8)$$

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Fresnel formulae for a moving ... S/141/61/004/006/017/017
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The dispersion relation used in the derivation of the above formulae is assumed to be

$$\frac{\omega^2}{c^2} - k^2 + \frac{\chi}{c^2}\frac{(ku - \omega)^2}{1 - u^2/c^2} = 0 \qquad (2)$$

and the boundary conditions are those given by Landau and Lifshits in "The electrodynamics of continuous media". It is stated that Eqs. (7) and (8) may also be obtained by applying the Lorentz transformation to the Fresnel formulae for a stationary boundary.

There are 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc. The English language references read as follows:

Ref.2: M.A. Lampert. Phys. Rev., v.102, 299 (1956).
Ref.3: K. Landecker, Phys. Rev., v.83, 832 (1952)

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva AN SSSR (Physics Institute imeni P.N. Lebedev AS USSR)

SUBMITTED: April 29, 1961

Card 3/3

S/053/61/075/002/006/007
B125/B102

AUTHOR: Bolotovskiy, B. M.

TITLE: Theory of the Cherenkov effect (III)

PERIODICAL: Uspekhi fizicheskikh nauk, v. 75, no. 2, 1961, 295 - 350

TEXT: This summary of the peculiarities of the radiation field of a charge moving in a finite or semi-finite medium is the continuation of the corresponding summary on Cherenkov radiation in an infinite medium (B. M. Bolotovskiy, Teoriya effekta Vavilova-Cherenkova UFN, 62, 201 (1957)). It is subdivided as follows: III. Cherenkov radiation in the presence of interfaces: 1) boundary conditions; 2) irradiation of a charge moving along the axis of a cylindrical channel filled with a dielectric; 3) motion of a point charge in parallel with the channel axis in a dielectric; 4) irradiation of dipoles moving along the axis of a cylindrical channel; 5) Cherenkov effect in linear periodic structures: a) general theory; b) motion of a charge in a waveguide with diaphragms; 6) Cherenkov effect in waveguides: a) waveguide filled with an isotropic dielectric; b) waveguide partially filled with an isotropic dielectric:

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c) waveguide filled with an anisotropic dielectric; 7) field of a charged particle moving in parallel with the interface of two media. The following Soviet papers are mentioned: M. A. Leontovich, A. I. Morozov (O primenenii granichnykh usloviy Leontovicha v teorii izlucheniya Vavilova-Cherenkova, ZhETF 33, 933 (1957)), L. A. Vaynshteyn (Elektromagnitnyye volny, M., "Sov. radio", 1957), V. I. Veksler (Atomnaya energiya, 11, No. 5, 427 (1957)), V. L. Ginzburg, I. M. Frank (Izlucheniya elektrona i atoma, dvizhushchikhsya po osi kanala v plotnoy srede, DAN SSSR 56, 699 (1947)), L. I. Mandel'shtam, P. A. Cherenkov, A. G. Sitenko (Effekt Cherenkova v ferrodielektrike, ZhTF 23, 2200 (1953)), V. L. Ginzburg, V. Ya. Eydman (O cherenkovskom izluchenii dipol'nykh momentov (izlucheniye v kanale), ZhETF 35, 1508 (1958)). L. S. Bogdankevich (O cherenkovskom izluchenii dipol'nykh momentov, dvizhushchikhsya po osi kanala v dielektrike, ZhTF 29, 1086 (1959)), A. I. Akhiyezer, G. Ya. Lyubarskiy, Ya. B. Faynberg (Ob effekte Cherenkova i slozhnom effekte Dopplera, DAN SSSR 73, 55 (1950)). Ob izluchenii zaryazhennoy chastitsy, dvizhushcheysya cherez svyazannyye rezonatory, ZhTF 25, 2526 (1955)). V. V. Vladimirskiy (ZhTF 17, 1269, 1277 (1947)), C. Muzikar (Effekt Cherenkova v volnovode, zapolnennom dielektrikom, Czech. J. Phys. 5 (1), 9 (1955)). S. N. Stolyarov, (no reference given) L. S. Bogdankevich (Cherenkovskoye izlucheniye v pryamougol'nom volnovode, zapolnennom anizotropnym dielektrikom, ZhTF 28, 1505 (1958)), V. Ye. Pafomov (Izlucheniye tochechnogo zaryada, letyashchego vdol' granitsy razdela dvukh sred, ZhETF 32, 610 (1957), and a personal communication), A. G. Sitenko, V. S. Tkalich (Ob effekte Cherenkova pri dvizhenii zaryada nad granitsey razdela dvukh sred, ZhTF 29, 1074 (1959)), G. M. Garibyan, O. S. Mergelyan (Izlucheniye zaryada, proletayushchego parallel'no granitse razdela sred, Izv. AN Arm. SSR 12, 91 (1959)). A formula of Frank and Tamm is also given. There are 9 figures and 419 references: 242 Soviet-bloc and 167 non-Soviet-bloc. The three most recent references to English-language publications read as follows: K. Kitao, Progr. Theor. Phys. 23, 759 (1960); N. Hokkyo, Nucl. Fusion Res. (Tokyo) 6, no. 2, 69 (1961); H. Lashinsky, Adv. in Electronics and Electron Phys. 14, 265 (1961).

43403

S/141/62/005/005/013/016
E140/E135

AUTHORS: Bolotovskiy, B.M., and Voronin, V.S.

TITLE: On energy losses of electric and magnetic charges in ferroelectrics

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v.5, no.5, 1962, 1033-1035

TEXT: The authors take issue with D. Ivanenko and V.N. Tsytovich (ZhETF, v.28, 1955, 291) and S. Hayakawa and K. Kitao (Progr. Theor. Phys., v.16, 1956, 131) concerning the existence of energy losses of charged particles moving in ferroelectrics, at frequencies at which magnetic resonances occur, other than Cherenkov and polarisation radiation. Using a straightforward derivation from the Poynting vector, it is shown that the approximate equation used in the above quoted papers

$$W_b = \frac{q^2}{\pi v^2} \operatorname{Re} \int_0^\infty i\,\omega d\omega \left(\frac{1}{\varepsilon} - \mu\beta^2 \right) \ln \frac{4}{3.17\zeta^2 b} \qquad (3)$$

derived on the assumption

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$$\left| b \frac{\omega}{v} \sqrt{1 - \varepsilon\mu\beta^2} \right| \ll 1 \qquad (2)$$

is not valid at frequencies for which magnetic resonance occurs. Analysis of the exact solution for this case shows that the radiation is independent of μ. Similarly, were magnetic charge to exist, it would not be subject to polarisation radiation at frequencies for which dielectric resonance occurs. This explains the failure of E. Amaldi et al. (Notas de Fisica, v.8, 15) to detect the magnetic charge from polarisation losses, hypothesized by Dirac.

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva AN SSSR
(Physics Institute imeni P.N. Lebedev, AS USSR)

SUBMITTED: May 23, 1962

BOLOTOVSKIY, B.M.

Radiation at a velocity beyond that of light. Priroda 51 no.4: 106 Ap '62. (MIRA 15:4)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR, Moskva.
(Cherenkov radiation)

BOLOTOVSKIY, B. M.; VORONIN, V. S.

Energy losses of electric and magnetic charges in ferrodielectrics.
Izv. vys. ucheb. zav.; radiofiz. 5 no.5:1033-1035 '62.
(MIRA 15:10)

1. Fizicheskiy institut imeni P. N. Lebedeva AN SSSR.

(Dielectric loss)

S/051/63/014/003/009/019
E032/E514

AUTHORS: Bolotovskiy B.M. and Mergelyan O.S.

TITLE: Theory of the Vavilov-Cherenkov radiation in an isotropic, optically active medium

PERIODICAL: Optika i spektroskopiya, v.14, no.3, 1963, 383-387

TEXT: The Vavilov-Cherenkov radiation emitted by a charged particle moving in a straight line with a constant velocity $\underline{v}$ in an isotropic, optically active medium, e.g. sugar solution, is discussed. It is assumed that the constitutive equations for the Fourier components of the electromagnetic field in the medium are given by

$$\left.\begin{aligned} \underline{D}_k &= \varepsilon \underline{E}_k + \frac{i\gamma}{k}\left[\underline{k}\underline{E}_k\right], \\ \underline{B}_k &= \mu \underline{H}_k . \end{aligned}\right\} \qquad (4)$$

where γ is a parameter representing the rotation of the plane of polarization and k is the wave number. It is shown that the radiated field may be looked upon as a superposition of plane waves which are circularly polarized in such a way that waves

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corresponding to the refractive index n_1 have a right-handed polarization, while those corresponding to the refractive index n_2 have a left-handed polarization, where

$$n_1^2 = \mu(\varepsilon + \gamma), \quad n_2^2 = \mu(\varepsilon - \gamma) \tag{7}$$

As in other media, the necessary condition for the emission of these waves is that their phase velocity should be lower than the velocity of the particle. A general formula is obtained for the rate of loss of energy by the emission of the Vavilov-Cherenkov radiation. The rate of loss of energy by the emission of a longitudinal field is found to be independent of γ and the same as in a nonactive medium. The losses occur at frequencies at which the permittivity becomes equal to zero.

SUBMITTED: May 18, 1962

BOLOTOVSKIY, B.M.; MERGELYAN, O.S.

Theory of Vavilov-Cherenkov radiation in an isotropic optically active medium. Opt. i spektr. 14 no.3:388-394 Mr '63. (MIRA 16:4)
(Interferometry) (Spectrometry)

L 16881-63 EWT(1)/EWT(m)/BDS AFFTC/ASD

ACCESSION NR: AP3005283 S/0056/63/045/002/0303/0304

54
53

AUTHOR: Barsukov, K. A.; Bolotovskiy, B. M.

TITLE: Radiation emitted by fast particles in an unstationary inhomogeneous medium

SOURCE: Zhur. eksper. i teoret. fiz., v. 45, no. 2, 1963, 303-304

TOPIC TAGS: fast particle radiation, nonstationary medium, inhomogeneous medium, Cerenkov radiation

ABSTRACT: The singularities of the radiation of a charged particle in a nonstationary medium are considered in view of recent interest in the use of such media for frequency multiplication, for parametric amplification, and similar applications. The phenomena induced by the passage of the charge are interpreted from the point of view of energy and momentum conservation. An expression is derived for the radiation intensity, which under suitable conditions yields

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L 16881-63

ACCESSION NR: AP3005283

also the energy lost by a charge to Cerenkov radiation. Orig. art has: 8 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (P. N. Lebedev Physics Institute, Academy of Sciences SSSR)

SUBMITTED: 02Feb63 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: PH NO REF SOV: 008 OTHER: 000

Card 2/2

BOLOTOVSKIY, Boris Mikhaylovich; CHERNYAK, L.Ye., red.

[Vavilov - Cherenkov luminescence] Svechenie Vavilova - Cherenkova. Moskva, Izd-vo "Nauka," 1964. 92 p. (MIRA 17:7)

BOLOTOVSKIY, B.M.

Some aspects of the theory of the passage of point and extended charges through matter. Trudy Fiz. inst. 22:3-100 '64.
(MIRA 17:9)

L 20249-65 EWT(l)/EWA(h) Pm-4/Peb ASD(a)-5/AFWL/SSD/AFETR/RAEM(a)/ESD(c)/RAEM(i)/RAEM(j)/ESD(gs)

ACCESSION NR: AP4039729 S/0141/64/007/002/0291/0299

AUTHOR: Barsukov, K. A.; Bolotovskiy, B. M.

B

TITLE: On the radiation of a charged particle moving in a nonstationary inhomogeneous medium

SOURCE: IVUZ. Radiofizika, v. 7, no. 2, 1964, 291-299

TOPIC TAGS: charged particle motion, traveling wave electron accelerator, moving charge radiation, frequency multiplier, parametric amplifier

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ABSTRACT: The radiation of a charged particle in a nonstationary medium whose parameters have a traveling-wave dependence on the coordinates and on the time law is considered, in view of the use of such media for generation of electromagnetic radiation, frequency multiplication, parametric amplification, and other purposes. This problem is also of interest because a high power electromagnetic wave modifies the properties of the medium through which it passes, making the medium periodically nonstationary and inhomogeneous. The radiation spectrum of the charged particle is derived by neglecting the effect of the inhomogeneity and nonstationarity of the medium on the properties of the emitted quantum. The conditions under which the particle emits and absorbs quanta are determined. The intensity of the radiation

L 20249-65

ACCESSION NR: AP4039729

2

of the moving particle is calculated in the geometrical optics approximation. The results obtained are applied to the case when the constants of the medium vary harmonically in time and in space. The radiation field is determined by successive approximation for the case when the periodic part of the dielectric constant is small. "In conclusion the authors are grateful to V. L. Ginzburg for a useful discussion." Orig. art. has: 52 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 25May63 ENCL: 00

SUB CODE: NP, EM NO REF SOV: 009 OTHER: 000

Card 2/2

BOLOTOVSKIY, B.M.; STOLYAROV, S.N.

Radiation principle in the electrodynamics of moving media. Izv. vys. ucheb. zav.; radiofiz. 7 no.3:442-445 '64. (MIRA 17:11)

1. Fizicheskiy institut im. P.N. Lebedeva AN SSSR.

L 20099-65

A. CESSION Nr: AP5000461 S/0109/64/009/012/2187/2189

JTHOR: Bolotovskiy, B. M.; Sedrakyan, D. M. B

T. .E: Radiation from a charged particle traveling through an open end of a c...uiar waveguide parallel to its axis

SOURCE: Radiotekhnika i elektronika, v. 9, no. 12, 1964, 2187-2189

TOPIC TAGS: particle radiation, particle in waveguide radiation

ABSTRACT: An exact solution of the problem formulated in the title is supplied. The radiation field is found by solving Maxwell equations with the boundary conditions at the walls of a semi-infinite waveguide. The sum of two fields is determined: (a) a field of the charged particle traveling in vacuum and (b) a field caused by currents induced by the particle in the waveguide walls. Orig. art. has: 16 formulas.

ASSOCIATION: none

SUBMITTED: 23Dec63 ENCL: 00

SUB CODE: GP, EC NO REF SOV: 009 OTHER: 001

Cord 1/1

ACCESSION NR: AP4038582 S/0022/64/017/002/0119/0126

AUTHORS: Bolotovskiy, B. M.; Sedrakyan, D. M.

TITLE: Radiation of a particle from the open end of a wave guide

SOURCE: AN ArmSSR. Izv. Seriya fiziko-matematicheskikh nauk, v. 17, no. 2, 1964, 119-126

TOPIC TAGS: particle radiation, wave guide, electromagnetic radiation, Maxwell equation, induced current, vector potential, scalar potential

ABSTRACT: With flight of a charged particle across the open end of a semi-infinite metallic wave guide, part of the field connected with the moving particle separates from the particle and propagates in the form of electromagnetic radiation. The authors study radiation caused by the motion of a particle parallel to the axis of a cylindrical metallic wave guide. In order to find the radiation field it is necessary to solve Maxwell's equation under boundary conditions imposed by the presence of the ideally conductive surface of the cylindrical wave guide. The solution of this equation is sought in the form of a sum of two fields: the field connected with the motion of the particle in a vacuum, and the field caused by current induced by the charged particle on the lateral surface of the wave guide.

ACCESSION NR: AP4038582

To determine radiation fields at large distances, the authors find an asymptotic form of the obtained functions, the radiation intensity, and its angular distribution. They also study particles with small deviations from the axis of a wave guide. They find that for motion of a particle along the axis of the wave guide the loss of radiation is either minimal or maximal, depending on the sign of an obtained expression. Orig. art. has: 22 formulas.

ASSOCIATION: TsNI Fiziko-tekhnicheskaya laboratoriya AN Armyanskoy SSR (Central Scientific Research Physicotechnical Laboratory, AN Armenian SSR)

SUBMITTED: 05Jul63 DATE ACQ: 05Jun64 ENCL: 00

SUB CODE: EM,GP NO REF SOV: 002 OTHER: 000

Card 2/2

L 21185-65 EWT(1)/T/EEC(b)-2 IJP(c)/AFWL/SSD/ASD(a)-5/AFMD(c)/RAEM(c)/RAEM(a)
ACCESSION NR: AP5003017 S/0051/65/018/001/0003/0009

AUTHOR: Bolotovskiy, B. M.; Mergelyan, O. S.

TITLE: Radiation produced by a charge crossing the interface between an isotropic and optically-active medium

SOURCE: Optika i spektroskopiya, v. 18, no. 1, 1965, 3-9

TOPIC TAGS: transition radiation, Cerenkov radiation, radiating charge

ABSTRACT: From an analysis of the dispersion equation for the transition radiation of a point charge crossing the interface between an isotropic and optically-active media it is shown that two waves, with oppositely directed circular polarizations, can propagate in the optically active medium. The polarization of this radiation is studied, and also its angular and frequency distribution. Expressions are obtained for the fields and energy fluxes of the transition radiation in the forward and backward directions. Conditions under which Cerenkov radiation appears in the isotropic medium are obtained, and the polarization of the resultant Cerenkov radiation is investigated. Orig. art. has: 31 formulas.

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L 21185-65
ACCESSION NR: AP5003017

ASSOCIATION: None

0

SUBMITTED: 03Nov63 ENCL: 00 SUB CODE: OP, NP

NR REF SOV: 005 OTHER: 000

Card 2/2

ACCESSION NR: AP4028959 S/0057/64/034/004/0704/0710

AUTHOR: Bolotovskiy, B.M.; Voskresenskiy, G.V.

TITLE: Radiation of a line current or a line charge passing through the open end of a plane waveguide

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.4, 1964, 704-710

TOPIC TAGS: line current waveguide radiation, line charge waveguide radiation, particle open waveguide radiation

ABSTRACT: The authors discuss the radiation from a system consisting of an infinite line current at $y = b$, $z = ut$ and two conducting half-planes $y = \pm a$, $z > 0$. Here x, y, z are rectangular coordinates, t is the time, and a, b, and u are constant parameters. The case of a moving line charge is also discussed. The calculation was undertaken because it is the simplest that bears on the technically important question of the radiation of a charged particle entering or leaving the open end of a waveguide. The field of the moving line current is represented by the vector potential, of which only the x component does not vanish. The vector potential is expanded in a Fourier integral in t, and the Fourier component is expressed as the sum of

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ACCESSION NR: AP4028959

two terms, of which one represents the field of the moving line current in an infinite plane waveguide and the other is a correction term. The correction term is expressed in terms of currents in the (infinite) waveguide. The currents (which are already expressed by Fourier time transforms) are expanded in Fourier integrals in z, and the boundary conditions on $y = \pm a$ that the total current vanish for $z < 0$ and the electric field vanish for $z > 0$ are written. The currents are obtained from these boundary conditions by the Wiener-Hopf method, and the radiation field is calculated. The field within the waveguide is expanded in normal modes, and the energy radiated into each mode is calculated. At high frequencies the radiation outside the waveguide is similar to that of a line current passing a single half-plane (B. M.Bolotovskiy and G.V.Voskresenskiy,ZhTF 34,11,1964). At lower frequencies the radiation distribution is dominated by waveguide resonance effects. For velocites near that of light, the radiation depends strongly on the sign of u, i.e., on whether the line current enters or leaves the waveguide. The radiation from a moving line charge is calculated similarly, the Hertz vector rather than the vector potential being used to describe the field, and the results are discussed briefly. Orig.art.has: 45 formulas and 1 figure.

ACCESSION NR: AP4028959

ASSOCIATION: Fizicheskiy institut im.P.N.Lebedeva, Moscow (Physical Institute)

SUBMITTED: 12Feb63 DATE ACQ: 28Apr64 ENCL: 00

SUB CODE: PH, GE NR REF SOV: 002 OTHER: 001

Card 3/3

S/0057/64/034/004/0711/0717

ACCESSION NR: AP4028960

AUTHOR: Bolotovskiy, B.M.; Voskresenskiy, G.V.

TITLE: Radiation of a point charge moving on the axis of a semi-infinite circular waveguide

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.4, 1964, 711-717

TOPIC TAGS: radiation, charged particle radiation, waveguide radiation

ABSTRACT: The authors calculate the radiation of a charged particle moving uniformly on the axis of a semi-infinite waveguide of circular cross section. The Hertz vector, of which the only non-vanishing component is that parallel to the axis of the waveguide, is expressed as the sum of two terms, of which one represents the field of the moving charge in empty space and the other is a correction term. The correction term is expanded in a Fourier integral in time, and the Fourier component is expressed in terms of the current in the waveguide wall. The current, already represented by its time Fourier transform, is expanded in a Fourier integral in the coordinate parallel to the waveguide axis. The boundary conditions on the waveguide are expressed as integral equations for the double Fourier transform of the current.

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ACCESSION NR: AP4028960

These are solved by the Wiener-Hopf method, and the radiation field is calculated. The radiation field within the waveguide is expanded in normal modes, and the energy radiated into each mode is calculated. The spectrum and angular distribution of the radiation outside the waveguide is derived. When the velocity of the particle is small, the radiation intensity decreases exponentially with increasing frequency. When the velocity is large, frequencies up to $\beta c/a\sqrt{1-\beta^2}$ occur and the total energy radiated is approximately $2e^2\beta/\pi a\sqrt{1-\beta^2}$. Here c is the velocity of light, β is the velocity of the particle, a is the radius of the waveguide, and e is the charge of the particle. The exact expressions for the angular and spectral distribution depend on the sign of the velocity, i.e., they depend on whether the particle enters or leaves the waveguide. Orig.art.has: 36 formulas.

ASSOCIATION: none

SUBMITTED: 24Apr63 DATE ACQ: 28Apr64 ENCL: 00

SUB CODE: PH, GE NR REF SOV: 004 OTHER: 002

Card 2/2

L 12607-65
ACCESSION NR: AP4046347 S/0057/64/034/010/1856/1862

AUTHOR: Bolotovskiy, B.M.; Voskresenskiy, G.V. 8

TITLE: Radiation of a linear source moving past a diffraction grating consisting of a system of perfectly conducting half-planes

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.10, 1964, 1856-1862

TOPIC TAGS: applied mathematics, electromagnetic radiation, line charge, line current, periodic medium, diffraction grating

ABSTRACT: The authors calculate the radiation of a line current parallel to the x-axis of a rectangular coordinate system x,y,z, and moving in the z direction with velocity u at a distance b from the plane of the edges of the perfectly conducting equally spaced half-planes $y > 0$, $z = na$, where n ranges over the positive and negative integers. The calculation was undertaken as an example of an exactly solvable problem concerning the radiation of an object moving in a linear periodic medium. The current induced in the planes is expanded in a double Fourier integral, and the boundary conditions are expressed as two integral equations for the Fourier component of the current: a homogeneous integral equation valid for $y < 0$ and an

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L 12607-65
ACCESSION NR: AP4046347

inhomogeneous integral equation valid for $y > 0$. This pair of integral equations is solved by the Wiener-Hopf method, and from the solution the radiation field is readily calculated. Expressions are derived for the field and the energy flux between the plates and in the free half-space $y < 0$. The frequency spectrum in the region $y < 0$ consists of Doppler shifted harmonics of the frequency u/a. The analogous problem of a moving line charge is treated similarly. Orig.art.has: 36 formulas.

ASSOCIATION: none

SUBMITTED: 25Jan64 ENCL: 00

SUB CODE: EM, MA NR REF SOV: 008 OTHER: 001

2/2

ACCESSION NR: AP4041140 S/0020/64/156/004/0770/0773

AUTHOR: Voskresenskiy, G. V.; Bolotovskiy, B. M.; Leontovich, M. A.

TITLE: Field of a charged filament moving uniformly in the vicinity of a system of perfectly conducting semiplanes

SOURCE: AN SSSR. Doklady*, v. 156, no. 4, 1964, 770-773

TOPIC TAGS: moving charged filament, electromagnetic emission, linear periodic conducting media, diffraction grating, waveguide

ABSTRACT: The radiation by charged particles in linear periodic media has been investigated earlier by several authors using approximation methods. The present author considers a problem of this kind which permits a rigorous solution. A uniformly charged filament is assumed to move with a constant speed parallel to a system of perfectly conducting semiplanes. The electromagnetic field is described by a Hertz' vector, consisting of the field of the charged filament moving in empty space and of that due to the boundary conditions on metallic plates. The total energy flux emitted by this "waveguide" is computed. The frequency of the radiation is determined essentially by the number of plates passed by the source in

ACCESSION NR: AP4041140

unit time, and its multiples. Orig. art. has: 21 equations.

ASSOCIATION: None

SUBMITTED: 29Oct63

ENCL: 00

SUB CODE: NP

NO REF SOV: 008

OTHER: 001

Card 2/2

ACCESSION NR: AP4040948

S/0020/64/156/005/1072/1074

AUTHOR: Voskresenskiy, G. V.; Bolotovskiy, B. M.

TITLE: Emission of a point-charged particle travelling along the axis of a semi-infinite circular waveguide

SOURCE: AN SSSR. Doklady*, v. 156, no. 5, 1072-1074

TOPIC TAGS: waveguide, semi-infinite waveguide, charged particle, charged particle emission, point charged particle, point charged particle emission, D'Alembert equation, wave operator, electromagnetic wave diffraction, acoustic wave diffraction, Wiener-Hopf equation, Hertz vector

ABSTRACT: The authors examine a circular waveguide of radius a with ideally-conducting infinitely thin walls. The waveguide is open at one end. An r, ϕ, z cylindrical system of coordinates was used with superposition of the waveguide axis on the z axis. It was assumed that the position of the waveguide walls is defined by the equations r = a and z > o. It was further assumed that a point charged particle q travels along the waveguide axis with avelocity of u. The problem is to determine the emission generated when the particle enters the waveguide (u > o) or when it exits the waveguide (u<o). The emission intensity at a frequency ω in the solid angle d Ω is equal to

ACCESSION NR: AP4040948

$$W_\omega(\theta)\,d\Omega = \frac{q^2|u|(1-\beta)|\varphi_2(\omega/u)|^2}{4\pi^2c^2 J_0^2(k\gamma a)} \frac{J_0^2(ka\sin\theta)\sin^2\theta\,d\Omega}{(1-\beta\cos\theta)^2(1-\cos\theta)|\varphi_2(k\cos\theta)|^2}. \quad (1)$$

In the case of low charge velocities, the emission spectrum lies in the low frequency range and satisfies the inequality

$$k\gamma a = \frac{\omega}{u}a < 1. \quad (2)$$

In the case of high charge velocities ($\beta \approx 1, \gamma$ o), the emission spectrum lies in that range of frequencies which satisfy the inequality

$$\omega < \frac{u}{\sqrt{1-\beta^2 a}} = \frac{c}{\gamma a}. \quad (3)$$

As far as high frequencies are concerned, use the fact that the function ϕ_2 for high values of the argument tends to unity may be made of. The case of the exit of the charge from the waveguide ($u < o$) was examined with the assumption that the emission of the fast charge was concentrated in the region of the angles $\pi - \theta \approx \gamma$. Then

$$W_\omega(\theta) = \frac{q^2}{4\pi^2 c}\frac{\sin^2\theta}{(1-\beta\cos\theta)^2}. \quad (4)$$

Orig. art. has: 19 equations

ASSOCIATION: None

SUBMITTED: 29Oct63 ENCL: 00

Card 2/3

BOLOTOVSKIY, B.M.; MERGELYAN, O.S.

Radiation of a charge crossing the interface between an isotropic and an optically active medium. Opt. i spektr. 18 no.1:3-9 Ja '65. (MIRA 18:4)

BARSUKOV, K.A.; BOLOTOVSKIY, B.M.

Radiation from an oscillator in an inhomogeneous and nonstationary medium. Izv. vys. ucheb. zav.; radiofiz. 8 no.4:760-767 '65. (MIRA 18:9)

1. Moskovskiy gosudarstvennyy pedagogicheskiy institut imeni V.I. Lenina.

L 11619-66 EWT(1) GG
ACC NR: AP5025288 SOURCE CODE: UR/0051/65/019/004/0469/0473

46
45
B

AUTHOR: Bolotovskiy, B. M.; Burtsev, A. K.

ORG: none

TITLE: Radiation of charge passing over diffraction grating

SOURCE: Optika i spektroskopiya, v. 19, no. 4, 1965, 469-473

TOPIC TAGS: diffraction grating, electron radiation, electromagnetic radiation

21,44,55

ABSTRACT: When a uniformly moving electron passes over any periodic structure such as a diffraction grating, an oriented electromagnetic radiation is emitted. This phenomenon has practical applications in the generation of electromagnetic radiation over a wide frequency range that is difficult to attain by other methods. To explain this radiation, the authors consider a three-dimensional problem in the approximation of the scalar theory of diffraction. Formulas are derived for the field and intensity of radiation of a point discharge and a planar modulated electron flux. It is shown that at small distances of the moving source from the diffraction grating, the radiation during passage over an inhomogeneous surface is identical to the radiation of a charge which moves in a vacuum and whose

Card 1/2 UDC: 535.23:539.124

L 14619-66
ACC NR: AP5025288

velocity changes in accordance with the periodic law. Authors express their gratitude to V. N. Parygin for a useful discussion. Orig. art. has: 2 figures and 13 formulas.

SUB CODE: 20 / SUBM DATE: 13Jul64 / ORIG REF: 003 / OTH REF: 005

TS

Card 2/2

BOLOTOVSKIY, B.M.; VOSKRESENSKIY, G.V.

Diffraction radiation. Usp. fiz. nauk 88 no.2:209-251 F '66. (MIRA 19:2)

1. Fizicheskiy institut im. P.N. Lebedeva AN SSSR.

ACC NR: AP6007267 SOURCE CODE: UR/0053/66/088/002/0209/0251

AUTHOR: Bolotovskiy, B. M.; Voskresenskiy, G. V.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR (Fizicheskiy institut AN SSSR)

45 B

TITLE: Diffraction radiation 21

SOURCE: Uspekhi fizicheskikh nauk, v. 88, no. 2, 1966, 209-251

TOPIC TAGS: electromagnetic wave diffraction, electromagnetic radiation, transition radiation, Cerenkov radiation, radiation intensity, electromagnetic wave scattering

ABSTRACT: This is a review article devoted to a class of radiation effects connected with scattering of the wave components of the field associated with charges moving past optical inhomogeneities in a medium. The optical inhomogeneities considered are ideally conducting surfaces of various forms (plane screens, waveguides, and periodic structures). The article consists of an introductory part with a brief description of this type of radiation and the features distinguishing it from other effects such as Cerenkov or transition radiation or radiation from a source in nonuniform motion and a presentation of the mathematical techniques necessary to get exact solutions of diffraction-radiation problems, and a major section devoted to various specific cases of diffraction radiation from uniformly charged wires or line currents. It is pointed out in the conclusion that in all cases there are several common characteristic properties: 1. The radiation energy is independent of the mass of the particle, but is determined by its velocity and charge. 2. The character of the diffraction

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radiation depends on the form of the scattering obstacle. 3. The angular and frequency distributions of the radiation are determined by the velocity of the source and the shape of the scattering obstacle. 4. The intensity of the radiation falls off exponentially at high frequencies. 5. The energy loss in diffraction radiation from line sources is proportional to the first power of the velocity when the velocity is low, and becomes dependent on the form of the line source and the shape of the obstacle at relativistic velocities. The section headings are: 1. Introduction. 2. The electromagnetic field of uniformly moving charges. 3. Mathematical methods for obtaining exact solutions of the problem of diffraction radiation. 4. Two-dimensional problems of diffraction radiation in flight of a source past a semi-infinite conducting screen. 5. Radiation of a line source moving near the open end of a plane waveguide. 6. Radiation from a source moving uniformly in the neighborhood of a diffraction grating formed by a system of equally spaced ideally conducting half planes. Orig. art. has: 10 figures and 187 formulas.

SUB CODE: 20/ SUBM DATE: none / ORIG REF: 024/ OTH REF: 004

L 26057-66 EWT(1)/EWA(h)

ACC NR: AP5022799 SOURCE CODE: UR/0141/65/008/004/0760/0767

52
B

AUTHOR: Barsukov, K. A.; Bolotovskiy, B. M.

ORG: Moscow State Pedagogical Institute im. V. I. Lenin (Moskovskiy gosudarstvennyy pedagogicheskiy institut)

TITLE: Oscillator radiation in nonhomogeneous and nonstationary medium

25

SOURCE: IVUZ. Radiofizika, v. 8, no. 4, 1965, 760-767

TOPIC TAGS: oscillator theory, laser radiation, travelling wave, frequency multiplication, electromagnetic wave, charged particle

ABSTRACT: Studies of nonstationary and nonhomogeneous media were related to uses of nonstationary media for frequency multiplication and parametric amplification. This initiated interest in a strong electromagnetic wave (for example, laser radiation) which in passing through the medium changes its properties: the medium becomes periodically nonstationary and nonhomogeneous. The radiation of a charged particle moving in nonhomogeneous and nonstationary medium has been investigated. The process of radiation in such a medium involves the energy and impulse being transferred to the medium. It is interesting to investigate the

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ACC NR: AP5022799

radiation of those systems which possess degrees of freedom also moving in a nonhomogeneous and nonstationary medium. The radiation of a point oscillator moving with a constant velocity in a medium whose properties were modulated by the travelling wave law are examined. As an example, the radiation of a stationary electric oscillator has been considered. A previous study was related to locating the transverse field of radiation of a moving oscillator. It is not difficult to see that the longitudinal field is determined by the same method. Orig. art. has: 32 formulas.

SUB CODE: 20 / SUBM DATE: 06Nov64/ ORIG REF: 007/ OTH REF: 000

Card 2/2

BELEVTSEV, G.A.; GAVRILENKO, N.G.; GRINENKO, I.M.; KOROSTIK, P.O.; KOTEL'NIKOV, I.V.; KRASAVTSEV, N.I., kand. tekhn. nauk; MISHCHENKO, N.M.; POPOV, N.N., kand. tekhn. nauk; SEMIK, I.P., kand. tekhn. nauk; TOTSKIY, G.P., kand. tekhn. nauk; SHESTOPALOV, I.I.; Prinimali uchastiye: SOLDATKIN, A.I.; SOLOMKO, V.P.; SOLOMATIN, A.M.; BOLOTSKIY, D.V.; ZAPOROZHETS, N.P.; BESSCHASTNYY, A.Ye.; SHVETS, N.Kh.; LIKHUNIN, S.D.; SHUMSKIY, L.B.; VAS'KOVICH, N.A.; YEROKHINA, A.I.; GELYUKH, B.A.

Desulfuration of pig iron in a fast-revolving and continuous drum. Met. i gornorud. prom. no.4:3-5 Jl-Ag '65. (MIRA 18:10)

BOLOTOVSKIY, I. A.

Postroenie profilia zuba evol'ventnykh zubchatykh koles. (Vestn. Mas., 1948, no. 4, p. 5-15, no. 5, p. 7-14)

Design of the tooth profile of involute gear wheels.

DLC: TN4.V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

BOLOTOVSKII, I. A.

K voprosu ob opredelenii koefitsienta formy zuba. (Vestn. Mash., 1950, no. 4, p. 5-11)

Determining the coefficient of the tooth shape.

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206120019-0"

BOLOTOVSKIY, I.A.

Obespechenie poñoty soprikosnoveniia zub'ev priamozubykh konicheskikh koles [Guaranteeing perfect fit of the teeth in straight-toothed, tapered gears]. Moskva, Izd-vo AN SSSR, 1952. 140 p.

SO: Monthly List of Russian Accessions, Vol. 6, No. 2, May 1953

BOLOTOVSKIY, I. A.

BOLOTOVSKIY, I. A. -- "Security of the Fullness of Engagement of the Teeth of Tapered Spur Gears." Sub 18 Jun 52, Inst of Machine Science, Acad Sci USSR (Dissertation for the Degree of Candidate in Technical Sciences)

SO: Vechernaya Moskva, January-December 1952

AID P - 4481

Subject : USSR/Engineering

Card 1/1 Pub. 128 - 8/29

Authors : Bolotovskaya, T. P., Engineer, I. A. Bolotovskiy, Kand. Tech. Sci., and V. E. Smirnov, Kand. Tech. Sci., Dotsent.

Title : Teeth interference of wheels cut on a broaching-type machine.

Periodical : Vest. mash., #4, p. 31-34, Ap 1956

Abstract : A geometrical analysis of the angular correction of a straight-tooth involute profile is presented. Charts.

Institution : None

Submitted : No date

18(0); 25(0); 10(6) PHASE I BOOK EXPLOITATION SOV/1993

Ufa. Aviatsionnyy institut

Trudy Vyp. 3 (Transactions of the Ordzhonikidze Aviation Institute, Ufa) Nr 3. Ufa, Bashkirskoye knizhnoye izd-vo, 1957. 222 p. Errata slip inserted. 1,000 copies printed.

Resp. Ed. for this no.: I.A. Bolotovskiy; Editorial Board: I.P. Yemelin (Resp. Ed.), A.N. Rakhmanovich, I.A. Bolotovskiy, S.I. Kalikov, V.A. Vinogradov, and P.D. Mirko; Ed.: N.A. Gurvich; Tech. Ed.: F.G. Gayfullin.

PURPOSE: The book is intended for engineers and scientific workers in the fields of metallurgy, technological processes, and fluid mechanics.

COVERAGE: This volume contains 14 articles dealing with metallurgy and mechanical, aeronautical, and electrical engineering problems. Individual abstracts are given in the Table of Contents.

Galimkhanov, K.G. A New Method for Determining the Elastic Limit and Yield Point for Torsion of a Thin Elastic Wire 63

A new method is given for determining the technical elastic limit of an elastic wire in torsion. An approximate analytical representation of the torsion diagram in the form of a parabola is assumed. The admissible residual angle of twist corresponding to the required elastic limit is determined from the diagram parameters on the basis of the assumption that the lines of unloading are parallel. References: 8 Soviet.

Bolotovskiy, I.A. On the Problem of a Rational Choice of Gear Transmission Displacement Coefficients 73

The convenience and expediency of the solution of all problems of correction with the aid of blocking devices are described. A comparison is made of a number of existing correction systems. Suggestions are given regarding a rational choice of displacement coefficients for three correction systems which guarantee maximum contact strength, maximum bending strength, and maximum stability with regard to gripping and wear. Tables of recommended displacement coefficients are given for some frequently occurring cases of gear wheels generated by a rack-cutter type tool. References: 15 Soviet, 3 German.

101

Bolotovskiy, I.A.

25(2) PHASE I BOOK EXPLOITATION SOV/2095

Konferentsiya po voprosam rascheta, konstruirovaniya i issledovaniy zubchatykh peredach i peredach gibkoy svyaz'yu. Odessa, 1957

Raschet, konstruirovaniye i issledovaniye peredach; trudy konferentsii, [t.] 1 (Design, Construction and Analysis of Transmissions; Transactions of the Conference on Problems in Design, Construction and Analysis of Gear and Flexible Transmissions, Vol 1) [Odessa] Odesskiy politekh in-t, 1958. 199 p. 5,000 copies printed.

Sponsoring Agencies: Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti, Odesskoye oblastnoye pravleniye, and Odesskiy politekhnicheskiy institut.

Ed.: I.P. Nikiforov, Engineer; Tech. Ed.: A. B. Komissarenko; Editorial Board: L.S. Borovich, Candidate of Technical Sciences, M.S. Belyayev, Engineer, M.D. Genkin, Candidate of Technical Sciences, K. I. Zablonskiy, Candidate of Technical Sciences (Resp. Ed.), P. S. Zak, Candidate of Technical Sciences, Ya.G. Kist'yan, Candidate of Technical Sciences, V. N. Kudryavtsev, Doctor of Technical Sciences, V.F. Mal'tsev, Candidate of Technical Sciences, M. S. Polotskiy,

Card 1/8

Candidate of Technical Sciences, and L.B. Erlikh, Candidate of Technical Sciences.

COVERAGE: This book is the first of three volumes dealing with the transactions of the conference. This first volume contains articles on the design and construction of gearings and worm gearings. The second volume treats flexible transmissions and the third, theoretical and experimental analysis of transmissions. References follow several of the articles.

TABLE OF CONTENTS:

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BOLOTOVSKIY, Y.. A. (Doc.)

Doz. Y. A. Bolotovskiy, Ing. T. P. Kaya, and Ing. M. E. Smirnov, "The Choice of Profile Displacement Coefficients in Involute Gears."

paper presented at the 2nd All-Union Conf. on Fundamental Problems in the Theory of Machines and Mechanisms, Moscow, USSR, 24-28 March 1958.

117-58-6-29/36

AUTHOR: Kogan-Vol'man, G.I., Candidate of Technical Sciences

TITLE: A Conference on Problems of Calculation, Design, and Investigation of Gear Transmissions and Gears With Flexible Connections (Konferentsiya po voprosam raschëta, konstruirovaniya i issledovaniye zubchatykh peredach i peredach gibkoy svyaz'yu)

PERIODICAL: Mashinostroitel', 1958, Nr 6, pp 43-44 (USSR)

ABSTRACT: At the end of 1957 a conference on problems of calculation, design, and investigation of gear transmissions and gears with flexible connections took place in Odessa. The conference was organized by the Odessa District Board of the Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti (Scientific Technical Society of the Machine Building Industry and the Odesskiy politekhnicheskiy institut (Odessa Polytechnical Institute). In the conference, 273 delegates from plants and scientific installations of Moscow, Leningrad, Odessa, etc. took part. Doctor of Technical Sciences, Professor V.N. Kudryavtsev (VVIA imeni Mozhayskiy) made a review of the methods of reducing the size and the weight of the gear transmissions. Candidate of Technical Sciences Ya.G. Kistyan (TsNIITMash) read a paper on the results of experiments into the process of sticking cogs

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onto straight-cogged wheels. Doctor of Technical Sciences Professor L.M. Novikov made propositions on point gears. Papers on this subject were also read by Candidate of Technical Sciences, Dotsent I.N. Grishel' (Leningrad Military Mechanical Institute) and the Candidate of Technical Sciences, Engineer, Lieutenant-Colonel R.V. Fedyakin (VVIA imeni Professor N.Ye. Zhukovskiy). The Candidate of Technical Sciences, Dotsent I.A. Bolotovskiy (Ufa Aviation Institute) read papers on "Blocking Contours and Their Use in the Design of Gear Transmissions" and "Rational Selection of Displacement Distribution Between Wheels Under Angular Correction by Means of Blocking Contours". Candidate of Technical Sciences P.S. Zak (Orguglemash), Candidate of Technical Sciences Ya.I. Diker (TsNIITMash), and Engineer I.S. Krivenko (Leningrad Shipbuilding Institute) read papers on worm gears. Doctor of Technical Sciences, Professor V.A. Yudin (Moscow Institute of Chemical Machine Building) read a paper on the geometry of planetary reductors with extra-polar gearing. Doctor of Technical Sciences Professor N.F. Rudenko (Wood Technical Academy) read

S/145/60/000/005/003/010
D221/D301

AUTHORS: I.A. Bolotovskiy, and V.E. Smirnov, Docents

TITLE: On the problem of selecting the displacement coefficients for external gears machined by Fellow-cutters

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 5, 1960, 41 - 50

TEXT: The consideration of specific parameters of the gear cutter permits the advantages of correction to be fully exploited. In practice, however, the selection of correction and the geometrical calculations are involved, due to special features of the Fellow-cutter when compared to a rack generating tool. These peculiarities result in a different geometry of teeth machined by a Fellow-cutter, and therefore, the displacement from the base contour must also be different. The root diameter of the gear would then be smaller, whereas the outside diameter will be greater than in the case of rack-cut gears. The fillets and their conjugation point with the involute will differ from those produced by

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On the problem of selecting ... D221/D301

the rack type tool. The phenomenon of interference may lead to teeth pointing. The correction coefficient as well as the limiting contour must be modified. The analysis of these contours permits the following deduction: The curves of the coefficient of overlapping in the case of Fellow-cutters are far removed from the coordinate origin and increase the area of the contour. This is accentuated with the wear of the tool. The curves of crest width for various parameters of the cutter intersect and their envelope is formed by the curve due to the rack tool. The curves of undercutting depend on the number of teeth in the gear, and to a lesser degree on the number of teeth in the cutter, its wear and the coefficient of blacklash, C_o. They differ little from the curves of the rack tool. The curves of interference have a form and position different from those due to rack generating, and are devided into two non-intersecting branches. The height of the fillet goes up with the reduction of the teeth number, and this increases the risk of pointing. The expanded correction contour permits a marked increase of the angle of engagement, and thus improvement of the surface as well as bending strength of teeth. The risk of seizure and specific slip are

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decreased. The area of the correction contour is narrowed by limited undercutting, interference and pointing in the region of small corrections. The author suggests an album of bounding contours for a rapid selection of the required shifts. The number of these curves should be limited to those which are applicable for any z_i or ξ_1. The outside diameter of gears are then determined by the rack equations, but the teeth are machined by a Fellow-cutter. The curves of undercutting, pointing and interference are plotted according to the parameters of tool which produces the maximum limitation. This ensures a contour applicable for gears machined by a Fellow-cutter and with outside diameter calculated by rack equations. There are 9 figures and 10 Soviet-bloc references.

ASSOCIATION: Ufimskiy aviatsionnyy institut (Ufa Aviation Institute)

SUBMITTED: June 26, 1959

S/145/60/000/008/002/008
D211/D304

AUTHORS: Bolotovskiy, I.A., Candidate of Technical Sciences, Docent, and Filadel'fov, T.P., Senior Lecturer

TITLE: Examination of the possibility of assembling coaxial, multi-train gear transmissions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 8, 1960, 41 - 48

TEXT: It is stated that previous works do not consider in which position of gears the assembly is possible and neglect the correction. The authors define the number of different positions in which the assembly is possible, and give the method of finding these positions in the compound, as well as in the epicyclic trains. General formulae are derived and results of previous works are obtained as special cases. There are 1 figure and 10 Soviet-bloc references.

ASSOCIATION: Ufimskiy aviatsionnyy - neftyanoy instituty (Ufa Aviation and Petroleum Institutes)

SUBMITTED: January 25, 1960

Card 1/1

GOL'DENBERG, A.B., otv. red.; MAVLYUTOV, R.R., otv. red.; BOLOTOVSKIY, I.A., red.; KULIKOV, S.I., red.; KHRIZMAN, I.A., red.

[Reports for the conference "Technical Progress in the Manufacture of Machinery"] Doklady k konferentsii "Tekhnicheskii progress v mashinostroenii." Ufa, 1961. 84 p. (MIRA 17:11)

1. Ufa. Aviatsionnyy institut. 2. Kafedra soprotivleniya materialov Ufimskogo aviatsionnogo instituta (for Mavlyutov).

BOLOTOVSKAYA, Tat'yana Petrovna; BOLOTOVSKIY, Izrail' Arkad'yevich, kand. tekhn. nauk; SMIRNOV, Vsevolod Erazmovich; EYDINOV, M.S., kand. tekhn. nauk, retsenzent; BOGOSLAVETS, N.P., tekhn. red.

[Manual on gear correction]Spravochnik po korrigirovaniiu zubchatykh koles. Pod red. I.A.Bolotovskogo. Moskva, Mashgiz, 1962. 215 p. (MIRA 15:10)

(Gearing)

BOLOTOVSKAYA, T.P.; BOLOTOVSKIY, I.A., kand. tekhn. nauk, dots.; BOCHAROV, G.S.; GULYAYEV, V.I.; KURLOV, B.A.; MERKUR'YEV, I.A.; SMIRNOV, V.E.

[Handbook on the geometrical calculation of involute toothed and worm gears] Spravochnik po geometricheskomu raschetu evol'ventnykh zubchatykh i cherviachnykh peredach. [By] T.P. Bolotovskaia i dr. Moskva, Mashgiz, 1963. 472 p. (MIRA 17:4)

KOSTYUK, D.I.; GOLDAYEVA, O.I.; YAKOVLEV, Yu.V. Prinimali uchastiye: BOLOTOVSKI, T.P.; BOLOTOVSKIY, I.A.; SMIRNOV, V.E.; BAZILYANSKAYA, I.L., red.

[Manual for the preparation of a course project in the theory of mechanisms and machines] Rukovodstvo k kursovomu proektirovaniiu po teorii mekhanizmov i mashin. Izd.2., ispr. i dop. Khar'kov, Izd-vo Khar'kovskogo univ., 1961. 265 p. (MIRA 18:6)

BOLOTOVSKIY, I.S.

Anatomicophysiological trend of the works of Kazan psychiatrists. Nauch. trudy Kaz. gos. med. inst. 14:9-10 '64. (MIRA 18:9)

1. Kafedra organizatsii zdravookhraneniya s istoriyey meditsiny (zav. - prof. T.D.Epshteyn) Kazanskogo meditsinskogo instituta.

BOLOTOVSKIY, I.S. (Kazan')

Use of sound recording in the practice of a psychiatric hospital. Kaz. med. zhur. no. 2:113-114 Mr-Ap '61. (MIRA 14:4)
(MENTAL ILLNESS) (TAPE RECORDINGS—THERAPEUTIC USE)

BOLOTOVSKIY, I.S. (Kazan')

Injury of the brain during a boxing match. Kaz.med.zhur. no.3:90-91 My-Je'63. (MIRA 16:9)
(BRAIN—WOUNDS AND INJURIES)

BOLOTOVSKIY, I.S. (Kazan')

On the 70th anniversary of the Kazan Society of Neuropathologiss and Psychiatrists. Kaz. med. zhur. no.5:98-101 S-O'63 (MIRA 16:12)

BOLOTOVSKIY, I.S. (Kazan')

Kazan Administrative Area Hospital and the fighters against autocracy. Sovet. zdravookhr. 5:61-63 '63 (MIRA 17:2)

TERSKIKH, I.I., CHERVONSKIY, V.I., BOLOTOVSKIY, V.M.

Construction of a chamber for working with viral and bacterial aerosols. Zhur. mikrobiol. epid. i immun. 29 no.9:130-133 S'58
(MIRA 11:10)

1. Iz Instituta virusologii imeni Ivanovskogo AMN SSSR.
(MICROBIOLOGY, appar. & instruments,
bact. & viral aerosol chamber (Rus))

BOLOTOVSKIY, V. M., Cand Med Sci (diss) -- "The development of an aerosol of the ornithosis virus, and a study of its properties under experimental conditions". Moscow, 1959. 12 pp (Acad Med Sci USSR) (KL, No 9, 1960, 128)

BOLOTOVSKIY, V.M.

Resistance of Miyagawanella to physical and chemical agents. Vop. virus. 4 no.1:63-67 Ja-F '59. (MIRA 12:4)

1. Institut virusologii imeni D.I. Ivanovskogo AMN SSSR, Moskva.
(MIYAGAWANELLA,
eff. of various chem. & physical factors (Rus))